

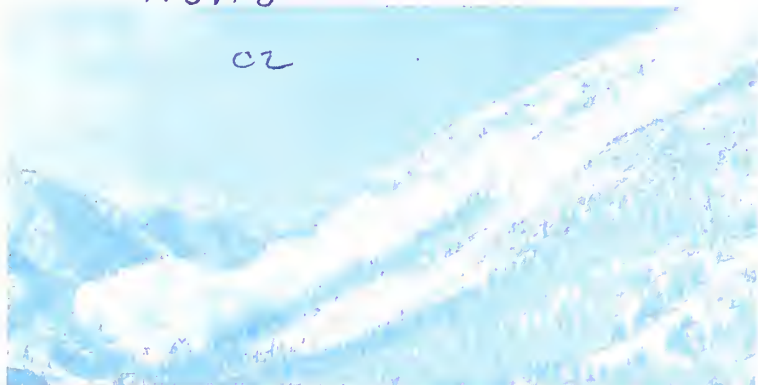
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ASA8

02



# Avalanche Notes

U.S. Forest Service  
Westwide Avalanche Network

FEBRUARY 1993

## Weather

The February storm track once more followed a southern route and brought record snows from the Sierra to the southern Rockies, and record minimum snows to parts of the Cascades. Alpine Meadows, CA, with 180% of normal, received its second highest February snowfall of record. Sugar Bowl, CA recorded 162" -- not a record but close. A sustained storm pounded the Sierra on the 16th-26th. Sugar Bowl got 132" in these 11 days, which included 58" on the 19th-21st and 35" on the 23rd-24th. June Mountain, CA, received 34" on the 19th-20th, and 36" on the 23rd-24th. The storm brought strong winds with it: Kirkwood Meadows, CA, recorded a gust to 98 mph on the 19th, and on the 19th-21st Alpine Meadows recorded 72 hours when the average wind did not fall below 55 mph. Sugar Bowl had several avalanches with 6- to 8-foot fractures on the 22nd.

In Colorado, all sites recorded snows of 183-300% of normal, and snow fell daily from the 8th-27th. The following sites set new February snowfall records: Aspen Highlands, Aspen Mountain, Beaver Creek, Berthoud Pass, Copper Mountain, Gothic, Monarch, Purgatory, Sunlight, Vail, Winter Park, and Wolf Creek. Aspen Mountain, Monarch, and Purgatory set new one-month snowfall records for any month. Taos, NM got 250% of normal and also set a February record.

In the Intermountain region, snows in the southern portion were above normal, while those in the northern portion were below normal. In Wyoming, Teton Pass got 105% of normal, while Jackson Hole, with daily snows on the 10th-25th, got 115%. Sun Valley, ID, got 128%, while in the Wasatch of Utah, Snowbird recorded 105% and Alta, 124%. Alta received 61" of snow on the 20th-25th. This storm triggered the largest avalanche cycle in Little Cottonwood Canyon, UT, in 20 years -- since the big one in December 1973.

Montana was out of the storm track: Big Mountain and Bridger Bowl both recorded 58% of normal, and Big Sky, 77%. Drier yet were the Cascades of Oregon and Washington. Mt. Hood Meadows, with 42% of normal snowfall, recorded its second driest February. Crystal Mountain received 27%; Mt. Rainier, 20%; and Stevens Pass, 12% of normal. Mt. Rainier and Stevens both endured their driest February of record.

In Alaska, Alyeska recorded 56" of snow on the 5th-7th and wound up with 112% of normal. Eaglecrest recorded 33" of snow on the 27th-28th.

## Avalanche

Four fatal avalanche accidents occurred in February. These were:



Feb 13, Arapahoe Basin, CO: Three skiers left the ski area through a boundary gate and triggered an avalanche that caught two of them. One was only partly buried, but the second, a 24-year-old woman, was deeply buried. Without rescue gear, one survivor searched while the other left to notify the patrol. Two hours later, a probe line struck her body beneath 6-7 feet of snow. She was dead from suffocation.

Feb 22, Two Top Mountain, ID: On this mountain just west of West Yellowstone, MT, a 17-year-old snowmobiler got off his machine and walked to the edge of a cornice. It collapsed and triggered an avalanche on the slope below which totally buried the victim. There were numerous eyewitnesses, all without rescue equipment. Hours later, a trained rescue dog was brought to the site and within 10 minutes, the dog had alerted and the victim had been dug out from 4 feet of snow. He had been buried 3 hours and was dead from suffocation.

Feb 22, Bend, OR: Three snowboarders were climbing a 50-degree slope above Todd Lake near Bend, with the intent of videoing some extreme snowboarding. The lead man triggered an avalanche that caught him and the man below him. They were carried 200 feet and buried against a tree, one on top of the other. The sole survivor and other witnesses searched the debris and spied a boot sticking out of the snow. They rescued this man who proved to be unhurt, but the second, more-deeply buried victim never responded to CPR and was later pronounced dead. He was 22.

Feb 25, Pine Crest, Wasatch Range, UT: A group of backcountry skiers were starting their fifth run, when the lead skier went over a knoll and triggered an avalanche. Minutes the second skier came upon the avalanche. The survivors began a beacon search but it took 30 minutes to locate and uncover the victim from 3 feet of snow. He was dead from suffocation.

There were several other interesting avalanche events and close calls in February:

Feb 21, near Crystal Mountain, WA: A backcountry skier triggered an avalanche, was swept 200 feet into a tree, and was shallowly buried and severely injured. His companions started a beacon search, saw a ski sticking from the snow, and uncovered the victim. Minutes later, the final party member still above triggered a second avalanche which caught the original victim and two of the rescuers and carried them another 150 feet down the slope. Luckily there was no further burial or injury. A helicopter airlifted the victim to a hospital where he spent four days in critical condition with a skull fracture, multiple facial fractures, and a broken femur, knee, and lower leg. He will recover.

Feb 20, Castle Creek, near Aspen, CO: Separate slides damaged a house and a truck ... about \$25,000.

Feb 21, Castle Creek, CO: A yurt-home was damaged.

Feb 21, Vail Pass, CO: Four cars and eight people were buried on Interstate 70. Other motorists probed with ski poles and all victims were rescued unhurt.

Date unknown, Twin Lakes, CA: Six homes were damaged or destroyed. First estimates put the loss at several hundred thousand dollars.

A total of 27 incidents were reported in February. These caught 37 people, partly buried 9, buried 5, injured 2, and killed 4. Avalanches caught 19 vehicles and damaged 3. Nine buildings were damaged. Avalanche statistics through February are 121 incidents, 159 people caught, 34 partly buried, 34 buried, 10 injured, and 20 killed; 43 vehicles caught and 10 damaged; and 12 buildings damaged.

#### JANUARY REVISITED

A remarkable avalanche rescue recently came to our attention. On January 13 on Carson Pass, CA, a wet-slab avalanche hit a pickup truck. The driver and another motorist were digging it out when a second avalanche caught both men. The pickup driver was carried 50 feet across the highway and buried 4 feet deep against a guardrail. A Caltrans plow driver saw the slide, and within minutes 15 probers were at work. They found and uncovered the victim within 36 minutes. He was unhurt.



U.S. FOREST SERVICE  
WESTWIDE WEATHER AND AVALANCHE NETWORK  
FORT COLLINS, COLORADO

FEBRUARY 1993  
SUMMARY OF WEATHER AND SNOW CONDITIONS

AREA	SNOWFALL			WATER EQUIVALENT							SNOW DEPTH				TEMPERATURE			WIND SPEED AND DIRECTION										
	TOTAL SNOW-FALL IN. DEN	MAX IN. DEN	D A	TOTAL WATER IN. DEN	MAX IN. DEN	D A	NUMBER OF DAYS				D A	D IN. DEN	D IN. DEN	D IN. DEN	MEAN MAX DEGREES F	MEAN MIN F	AVG F	AVG FOR MO. MPH	6 HOUR PERIODS		FASTEST HOUR DIR.	D A						
							T	GE	GE	GE									T	GE			T	GE	T	GE	T	GE
AREA	IN.	DEN	IN. E	IN.	IN.	E	.1	.2	.5	1.0	IN.	E	IN.	IN.	MAX	MIN	AVG	MPH	15	20	MPH	DIR.	E					
CENTRAL AND SOUTHERN ROCKY MOUNTAINS																												
ARAPAHOE BASIN, COLO	81.0	.09	8 10	7.09	.75	19	20	15	7	0	71	25	41	57	22.0	4.8	13.4	13.1M	32M	15M	--	--	--					
ASPEN HIGHLANDS, CO	86.3	.08	14 21	6.73	1.15	21	18	12	4	2	82	21	45	59	25.7	8.9	17.3	3.8	0	0	19	310	21					
BEAR LAKE, RMNP, CO	77.1	.06	14 20	4.76	1.00	20	18	11	1	1	70	24	36	51	23.3M	11.4M	17.4M	--	--	--	--	--	--					
BEAVER CREEK, COLO	112.9	.07	8 12	8.43	.70	20	19	19	6	0	90	26	52	71	24.6	7.4	16.0	6.8	7	0	19	270	21					
BERTHOUD PASS, COLO	84.7	.06	9 10	5.50	.78	10	20	14	1	0	68	23	44	59	23.3	5.7	14.5	11.3	34	16	30	230	19					
BRECKENRIDGE, COLO	82.5	.08	9 21	6.58	1.10	23	21	12	4	1	67	24	39	52	19.9	5.0	12.5	10.7M	21M	7M	--	--	--					
COPPER MTN, COLO	82.5	.06	8 20	4.60	.55	23	20	11	1	0	65	21	41	51	29.7	8.6	19.1	17.1	68	40	45	290	20					
CRESTED BUTTE, COLO	85.0	--	12 19	--	--	--	--	--	--	--	81	26	46	62	23.0M	11.2M	17.1M	9.2M	18M	4M	33	200	19					
GOthic, COLO	143.0	.08	14 19	10.73	1.20	19	19	17	11	2	105	26	59	79	24.2	9.0	16.6	--	--	--	--	--	--					
KEYSTONE, COLO	73.2	.06	8 20	4.62	.50	10	19	12	2	0	58	22	32	46	25.4	7.0	16.2	6.3	2	0	--	--	--					
MONARCH, COLO	128.1	.06	17 23	8.23	1.55	20	19	15	5	2	93	23	44	63	23.2	8.6	15.9	--	--	--	--	--	--					
PURGATORY, COLO	112.1	.07	22 20	7.92	2.10	20	15	12	6	2	103	28	63	79	22.0	9.2	15.6	--	--	--	--	--	--					
RED MTN PASS U.S.550	93.5	.08	21 20	7.85	1.70	20	19	13	4	2	99	21	58	75	26.8	9.9	18.3	--	--	--	--	--	--					
SUNLIGHT, COLO	99.0	.07	12 26	7.25	1.05	26	21	14	4	1	86	26	48	63	27.2	11.0	19.1	--	--	--	--	--	--					
TAOS, NEW MEXICO	93.0	.07	16 15	6.05	1.05	15	14	12	5	2	129	21	78	102	25.7M	13.1	19.4M	11.0	25	6	28	240	20					
TELLURIDE, COLO	77.5	.08	19 20	6.50	1.60	20	16	11	4	1	74	22	49	58	20.9M	9.4	15.2M	5.9M	3M	0M	27	240	24					
VAIL, COLO	124.5	.07	9 3	8.17	.80	20	20	19	4	0	98	26	54	76	20.9M	10.1M	15.5M	7.2M	6M	0M	24	140	1					
WINTER PARK S.A., CO	120.1	.07	11 17	8.21	1.05	10	22	19	4	1	86	26	51	71	20.8	8.1	14.4	7.1M	9M	1M	25	290	22					
WINTER PARK 1E, COLO	80.1	.06	10 10	4.99	.90	10	19	11	1	0	57	25	33	47	28.3	6.0	17.1	--	--	--	--	--	--					
WOLF CREEK, COLO	141.1	.10	16 9	14.27	1.85	9	18	14	10	7	156	26	102	124	25.5M	10.8M	18.1M	16.4M	54M	39M	53	230	16					
INTERMOUNTAIN																												
BIG MOUNTAIN, MONT	31.5	--	6 22	--	--	--	--	--	--	--	99	23	85	90	21.8	7.1	14.5	--	--	--	20	20	20					
BIG SKY, MONT	34.0	--	4 12	--	--	--	--	--	--	--	58	21	44	50	22.5	9.4	15.9	5.3M	3M	2M	38	190	20					
BRIDGER BOWL, MONT	27.5	.05	5 15	1.47	.40	12	7	3	0	0	68	22	54	59	28.3	9.9	19.1	9.9	23	12	35	270	27					
JACKSON HOLE 1, WYO	74.3	.07	11 13	5.57	.78	20	13	11	5	0	96	24	64	77	21.5	13.5	17.5	11.9M	32M	14M	39	270	21					
SCHWEITZER BASIN, ID	29.5	--	9 20	--	--	--	--	--	--	--	94	22	70	79	27.1M	13.9M	20.5M	--	--	--	35	50	14					
SNOWBIRD, UTAH	81.5	.08	19 21	6.85	1.50	21	13	10	5	2	120	25	87	97	30.0	16.0	23.0	18.9	71	49	--	--	--					
SUN VALLEY, IDAHO	44.0	.07	9 19	3.11	.65	19	7	6	2	0	80	24	57	65	22.3	11.9	17.1	8.3	17	3	27	120	8					
TETON PASS, WYO 22	50.6	.09	11 22	4.36	1.20	22	9	8	4	1	--	--	--	--	21.4	8.0	14.7	7.1	13	2	40	270	20					
WEST COAST																												
ALPENTAL, WASH	13.5	--	4 20	--	--	--	--	--	--	--	81	1	70	73	29.1M	18.7M	23.9M	14.2M	47M	36M	72	110	5					
ALPINE MEADOWS, CAL	131.5	.12	23 20	15.65	2.72	20	17	13	10	7	170	24	109	129	32.8	21.9	27.4	29.1	95	72	90	270	20					
ALYESKA, ALASKA	94.5	.07	24 6	8.70	1.57	26	14	12	6	2	126	6	93	104	29.4	19.8	24.6	5.1	2	0	19	100	7					
CRYSTAL MTN 1, WASH	15.1	.06	6 20	.88	.36	20	4	1	0	0	71	22	61	64	32.0	20.0	26.0	15.4M	47M	37M	50	60	17					
CRYSTAL MTN 2, WASH	12.7	.06	4 20	.76	.25	20	3	2	0	0	72	22	64	65	29.6M	15.6	22.6M	--	--	--	--	--	--					
EAGLECREST, ALASKA	48.0	.11	14 4	7.38	1.47	26	9	8	6	4	65	3	43	49	30.8M	22.4M	26.6M	--	--	--	--	--	--					
HEAVENLY VALLEY, CAL	66.1	--	16 20	--	--	--	--	--	--	--	150	25	100	116	32.9	12.6	22.8	--	--	--	--	--	--					
JUNE MOUNTAIN, CALIF	122.0	.09	18 20	10.80	2.50	19	14	11	8	3	127	27	81	95	32.8	15.5	24.1	--	--	--	--	--	--					
MT. HOOD MDWS, ORE.	35.5	.09	8 19	3.14	1.12	19	7	6	2	1	117	22	96	103	33.7	18.4	26.0	10.2	25	16	42	70	15					
MT. RAINIER PARADISE	21.6	.06	4 20	1.41	.31	20	7	2	0	0	116	1	107	111	31.6	18.6	25.1	--	--	--	--	--	--					
SNOQUALMIE PASS I-90	10.3	--	4 20	--	--	--	--	--	--	--	65	1	58	61	36.2	19.2	27.7	16.1	59	41	--	--	--					
SQUAW VALLEY, CALIF	107.5	--	23 20	--	--	--	--	--	--	--	134	24	67	88	34.1	18.6	26.4	--	--	--	--	--	--					
STEVENS PASS 5E WASH	9.5	.14	5 22	1.32	.80	22	4	2	1	0	73	1	63	67	30.1	19.6	24.8	10.6M	38M	25M	47	90	8					
SUGAR BOWL, CALIF	162.0	--	20 19	--	--	--	--	--	--	--	277	24	176	214	31.7M	18.5M	25.1M	13.3M	51M	29M	40	220	19					

-- DATA INCOMPLETE OR MISSING

M--ONE OR MORE DAYS OF RECORD MISSING-IF AVERAGE VALUE IS ENTERED, LESS THAN 10 DAYS RECORD IS MISSING

IF M IS ENTERED IN WIND SPEED COLUMN, LESS THAN 37 6-HOUR PERIODS ARE MISSING

GE--GREATER THAN OR EQUAL TO

FEBRUARY 1993  
AVALANCHE SUMMARYCENTRAL AND SOUTHERN ROCKY MOUNTAINSINTERMOUNTAINWEST COAST

-- = DATA INCOMPLETE OR MISSING  
GE = GREATER THAN OR EQUAL TO  
+ = ALSO OCCURRED ON OTHER DATES